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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/432,022	10/29/1999	JOHN E. DONOHUE	500.723US1	9521

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EXAMINER

KUMAR, PANKAJ

ART UNIT PAPER NUMBER

2631

DATE MAILED: 11/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/432,022

Applicant(s)

DONOHUE, JOHN E.

Examiner

Pankaj Kumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is too long. The abstract needs to be 150 words or less. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "pair of inputs to the operational amplifier" in claim 1 and other claims is used by claim 2 and other claims to mean "pair of inputs from the differential output," while the accepted meaning is "pair of inputs to the operational amplifier."

4. Claim 15 is indefinite since it says "A synchronization source ..." and then says "... wherein the synchronization source is determined by ...". There is nothing that needs to determine a synchronization source since there is only one synchronization source and this synchronization source has already been determined since it says 'A synchronization source ...'.

5. Claims 1, 15, 23 and others are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission

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amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The electronic selector has an (i.e. one) input that is responsive to the input signal. So, there is an omission as to how the electronic selector is coupled to a differential output of the phase detector.

6. Claims 2, 7, 8, and others are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: These claims recite "... pair of inputs from the differential output ...". This indicates that there is only one output. Thus, it is not shown how a pair of inputs can be from just one output. Applicant should indicate that one differential output constitutes two outputs or write differential outputs.

7. Claim 5 and others recite the limitation "a switch which couples the pair of inputs together". There is insufficient antecedent basis for this limitation in the claim. Claim 1 and others have "... pair of inputs to the operational amplifier ..." while claim 2 and others have "... pair of inputs from the differential output ...". Thus, claim 5 and others are indefinite when they recite "... a switch which couples the pair of inputs together ..."

8. Claim 6 and others recite the limitation "circuit which holds the pair of inputs". There is insufficient antecedent basis for this limitation in the claim. Claim 1 and others have "... pair of inputs to the operational amplifier ..." while claim 2 and others have "... pair of inputs from the differential output ...". Thus claim 5 and others are indefinite when they recite "... circuit which holds the pair of inputs ...". Even though the pair of inputs to the operational amplifier is

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equivalent to the pair of inputs from the differential output of the phase detector, the terminology used should be consistent.

9. Claims are also rejected since the phase detector has two inputs and the operational amplifier has two inputs. Thus, indicating a pair of inputs is indefinite.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 2, 3, 8, 9, 10, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Abe et al. USPN 5319320.

12. As per claim 1, Abe teaches a phase locked loop circuit, comprising:
a differential phase detector (Abe fig. 1: 60) that receives an input signal and a feedback signal and produces a differential output signal;
an electronic selector circuit (Abe fig. 1: SW1 with 75 and 70 and possibly other components) coupled to the differential output of the phase detector (Abe fig. 1: via various components) with an input that is responsive to a detected state of the input signal (Abe fig. 1: responsive by allowing the signal to go through SW1);
an operational amplifier based loop filter circuit (Abe fig. 1: 92 and components around it), wherein the electronic selector circuit provides the differential output of the phase detector at a pair of inputs to the operational amplifier;

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a voltage controlled oscillator (Abe fig. 1: 50) coupled to an output of the operational amplifier and providing an output frequency for the phased locked loop circuit; and wherein the electronic selector circuit is operable to control the input to the operational amplifier to hold the output frequency of the voltage controlled oscillator at a substantially constant frequency. (Abe paragraphs 5 and 6: "Since oscillation frequency $f_{\text{sub. OSC}}$ of voltage-controlled oscillator 40 is varied by the value of the filter output voltage $V_{\text{sub. F}}$, the phase difference between oscillator output $V_{\text{sub. OUT}}$ and input signal $S_{\text{sub. IN}}$ becomes zero as time progresses.

(6) During a time in which signals $X_{\text{sub. 1}}$, $X_{\text{sub. 2}}$ of each period are not generated, an integrated load is stored in capacitor $C_{\text{sub. F}}$, and, therefore, the output of voltage-controlled oscillator 40 is controlled by that charging voltage. Therefore, the charging voltage of capacitor $C_{\text{sub. F}}$ for current i functions as a frequency control signal for the pull-in operation that matches oscillation frequency $f_{\text{sub. OSC}}$ to the frequency of input signal $S_{\text{sub. IN}}$."

As per claim 2, Abe teaches the circuit of claim 1, wherein the electronic selector circuit decouples the pair of inputs from the differential output (rejected with 112; if X_1 and X_2 are low then V_1 will not change as shown in fig. 3 and thus 60, in fig. 1, is decoupled) and holds the output frequency under an external command when the input signal to the phase detector is interrupted (Abe: see quote above from paragraphs 5 and 6; fig. 1: b1, b2, SW2, 95).

As per claim 3, Abe teaches the circuit of claim 2, wherein the electronic selector circuit holds a current signal input to the operational amplifier when a reference signal to the phase detector is

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interrupted (Abe paragraph 14 “In the above embodiment, filter 75, made from capacitors C.sub.1 and C.sub.2, corresponds to capacitor C.sub.F (see FIG. 4)”); paragraph 6 “During a time in which signals X.sub.1, X.sub.2 of each period are not generated, an integrated load is stored in capacitor C.sub.F, and, therefore, the output of voltage-controlled oscillator 40 is controlled by that charging voltage. Therefore, the charging voltage of capacitor C.sub.F for current i functions as a frequency control signal for the pull-in operation that matches oscillation frequency f.sub.OSC to the frequency of input signal S.sub.IN.”).

As per claim 8, Abe teaches a phase locked loop circuit, comprising:

a differential phase detector that receives an input signal and a feedback signal and produces a differential output signal (discussed above); an electronic selector circuit coupled to the differential output of the phase detector with an input that is responsive to a detected state of the input signal (discussed above); an operational amplifier based loop filter circuit, wherein the electronic selector circuit provides the differential output of the phase detector at a pair of inputs to the operational amplifier (Abe fig. 1: 60 has 2 outputs and 92 has 2 inputs and 60 and 92 are connected via other components); a voltage controlled oscillator coupled to an output of the operational amplifier and providing an output frequency for the phased locked loop circuit; and wherein the electronic selector circuit de-couples the pair of inputs from the differential output (rejected with 112 and also in Abe in fig. 1 if R1 is much larger than R2 or vice versa, then this equates to decoupling both outputs of the phase detector which are narrowed to just one input into the switch) and holds the output frequency of the voltage controlled oscillator to a last

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received signal from the differential output when the input signal to the phase detector is interrupted (Abe: paragraphs 5 and 6).

As per claim 9, Abe teaches the circuit of claim 8, wherein the electronic selector circuit includes a switch which couples the pair of inputs (reject for 35USC112 reasons above and also because phase detector has two inputs and opamp has two inputs) together to hold the last received signal (from the differential output as stated in claim 8) as a current signal input to the operational amplifier when the input signal is interrupted (discussed above; as shown in fig. 3, when X1 is high and X2 is low, V1 and i3 remain constant).

As per claim 10, Abe teaches the circuit of claim 8, wherein the electronic selector circuit includes a logic based selector circuit which holds the pair of inputs (reject for 35USC112 reasons above) to an identical potential level to hold the last received signal (Abe fig. 3: V2 is constant at some places) from the differential output at the operational amplifier when the input signal to the phase detector is interrupted (discussed above).

As per claim 15, Abe teaches a communication system, comprising:

a number of traffic cards having inputs and outputs (Abe fig. 1: b1, b2);

a switching device coupled to the number of traffic cards (Abe fig. 1: SW2); and

a synchronization source coupled to the number of traffic cards, wherein the synchronization source is determined by a selector coupled to an external synchronization source (Abe fig. 1: Z) and a controller, wherein the selector provides an input signal to a phased locked loop circuit,

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wherein the phase locked loop circuit is coupled to the controller, and wherein the phase locked loop circuit includes:

a differential phase detector that receives the input signal and a feedback signal and produces a differential output signal;

an electronic selector circuit coupled to a differential output of the phase detector with an input that is responsive to a detected state of the input signal;

an operational amplifier based loop filter circuit, wherein the electronic selector circuit provides the differential output of the phase detector at a pair of inputs to the operational amplifier;

a voltage controlled oscillator coupled to an output of the operational amplifier and providing an output frequency for the phased locked loop circuit; and wherein the electronic selector circuit de-couples the pair of inputs from the differential output and holds the output frequency of the voltage controlled oscillator to a last received signal from the differential output when the input signal to the phase detector is interrupted. (see above)

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

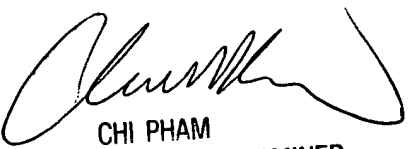
O'Shaughnessy et al. USPN 5594388.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on Monday through Thursday after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

PK
November 12, 2002


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER
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